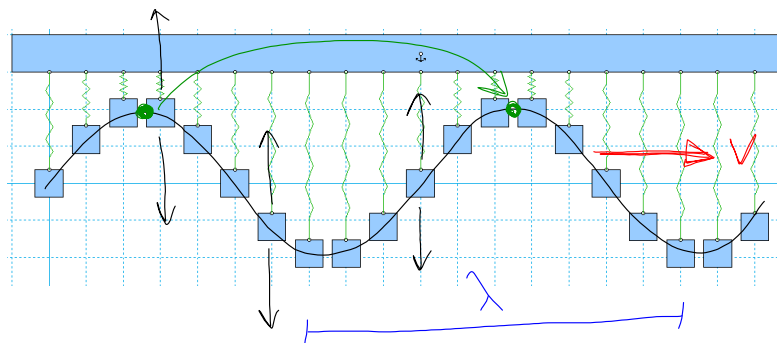


The wave returns to its original configuration after  $t = t_4$ .

Period,  $T = t_4$



The time required for the first peak (green dot) to reach the location of the second peak (other green dot) is the same as the time required for any one of the little blocks to complete one full up and down oscillation.

$$\Rightarrow v = \frac{\lambda}{T} \quad T = \frac{1}{f} \quad \omega = 2\pi f$$

$$\Rightarrow v = \lambda f = \frac{\lambda \omega}{2\pi}$$

wave number,  $k \equiv \frac{2\pi}{\lambda}$

$$\Rightarrow \lambda = \frac{2\pi}{k} \Rightarrow v = \frac{2\pi}{kT} = \frac{2\pi f}{k}$$

Standing waves - interference of a left moving sine wave and a right moving sine wave with the same speeds and wavelengths.

See standingWave.nb and standingWaveB.nb (mathematica files)